A monthly report from the Norfolk Department of Utilities

Norfolk Department of Utilities

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Utilities employees get the dirt on trenching safety

Joint training promotes understanding of responsibilities in trench emergencies

Most people underestimate the weight of dirt. Consequently, they also underestimate its danger.

Here are a few facts:

A cubic yard of dirt (the amount contained in the bucket of a backhoe) weighs approximately 2,800 pounds – that's the weight of a pick-up truck.

That same amount of dirt in a trench cave-in can generate as much as 10,000 pounds of weight when mixed with water and the pressure of the soil around it.

Lt. Brad Antons (lt.) explains the different types of shoring materials to Utilities employees Oliver Vaughan (next to Antons), Emory Payne middle), and Peter Hammond (far right).

It's no wonder that, according to the Occupational Safety and Health Administration (OSHA), about 400 people die and 65,000 are injured annually in trenching operations. For that reason, OSHA established trenching safety standards in the OSHA Construction Industry Regulations.

Training participants construct a hoist for a mock trench rescue.

These standards allow employers to choose between two types of protective systems: sloping or benching, which reduce the angles of the walls of the excavation to a level that minimize the potential for cave-ins; or shoring and shielding, which provide vertical support and protection within the excavation.

Coastal Video Communications Corporation, a leading safety training company, quotes another study as revealing that 85% of all trenching cave-in fatalities occurred in trenches that did not have adequate protection. It's safe to say that most people don't knowingly put themselves in danger, so the key to preventing catastrophic trench emergencies must be proper education and training exercises.

Trenching safety is important to those employees frequently involved in excavations, as are most city departments at some time. It is also essential to the Fire and Paramedic and Emergency Medical Services units, who are called on to rescue victims trapped in excavations.

Therefore, joint trenching safety training was a logical step in the safety programs of the Hampton Roads Regional Emergency Response Team and the Department of Utilities. The team needed a location for a training exercise that would span several days and would facilitate the many different excavation scenarios. Norfolk Utilities had the perfect

In the classroom training, Lt. Antons explains that gravity wants to fill the hole, and the emergency trenching rescuer must overcome that gravity.

Utilities Safety Officer John Tokarz and Hampton Roads Sanitation District guests discuss the trenching safety procedures with Antons.

location and was looking for partnership in excavation training that would benefit its employees.

The training was twofold in that it educated participants to the latest technologies in on-site trench shoring systems and it demonstrated the emergency procedures necessary to rescue a victim of a trenching emergency.

Department of Utilities employees were trained to assist the emergency response team by keeping a level head in the face of the emergency and providing them with the type of information essential to an immediate and effective response. For example, responders need to know the number of people trapped, the soil classification, how much soil is covering the victim, how long he or she has been trapped, and any other hazardous conditions that may be present.

“This is information we need immediately,” said Lt. Brad Antons of Norfolk Fire and Paramedical Rescue Services, the primary trainer for the exercise. “It delays the rescue procedure if we have to start from scratch and gather the information ourselves.”

The training session was a three-day event, held at Moores Bridges Water Treatment Plant. Each day began with a classroom session outlining trench hazards, shoring systems and emergency response procedures. The participants then moved to excavation sites where they put emergency response and trenching safety theories into practice.

The excavation site staged different trenching scenarios: a hoist operation, in which the responders must build a tripod to lower equipment into a trench and extricate victims; a shoring operation, that allowed participants to construct supports to prevent cave-ins; and a rescue operation to remove a victim trapped under a large utility pipe.

The final trench scenario included shoring, hoisting and rescuing a victim trapped under a utility pipe.

For Utilities employees, it was an eye-opening experience in new shoring technologies and in the amount of time it takes to rescue someone trapped in a trench.

“I always tell the other workers that dirt has no conscience,” said Tim Mullen, Senior Utility Maintenance Supervisor for the Division of Wastewater. “It doesn’t care if you have a family or if you’re a good person…it can be a killer. You’ve got to be safe around trenches.”

While the Regional Emergency Response Team was fast and efficient, observers learned that safe rescue is not necessarily immediate.

“I had no idea it took this long to rescue someone,” said Frank Davis, Water Treatment Plant Maintenance Mechanic for Water Production. “Man, this just emphasizes that we really need to know our safety procedures.”

At the end of the training, Utilities created a partnership with the emergency response personnel and a deeper understanding of each other’s responsibilities. This type of partnering exercise has been included in the Department’s annual safety training program.♦